

**What is claimed is:**

1           1. A branch prediction apparatus, comprising:  
2           a base misprediction history register;  
3           a meta predictor to receive an index value and a branch prediction to generate a  
4 misprediction value in accordance with said base misprediction history register; and  
5           a logic gate to receive said branch prediction and said misprediction value to generate a final  
6 prediction.

1           2. The branch prediction apparatus of claim 1, wherein said base misprediction history  
2 register includes misprediction history data.

1           3. The branch prediction apparatus of claim 1, further comprising an instruction that  
2 provides said index value.

1           4. The branch prediction apparatus of claim 3, wherein said instruction is a branch  
2 instruction.

1           5. The branch prediction apparatus of claim 4, wherein said final prediction determines a  
2 branch for said branch instruction.

1           6. The branch prediction apparatus of claim 1, further comprising a branch predictor that  
2 receives said index value and generates said branch predictor.

1           7. The branch prediction apparatus of claim 6, wherein said branch predictor utilizes a  
2 prediction scheme to generate said branch prediction.

1           8. The branch prediction apparatus of claim 6, wherein said branch predictor includes a  
2 target address field and a prediction table.

1           9. The branch prediction apparatus of claim 1, wherein said base misprediction history  
2 register contains values of zero (0), and the misprediction value is not generated by said meta  
3 predictor.

1           10. A method for predicting branches, comprising:  
2 receiving an index value, a branch prediction value correlating to said index value, and a  
3 misprediction history value at a meta predictor; and  
4 generating a misprediction value at said meta predictor.

1           11. The method of claim 10, further comprising generating said branch prediction value at  
2 a branch predictor.

1           12. The method of claim 11, further comprising receiving an index value at said branch  
2 predictor.

1           13. The method of claim 10, further comprising generating a final prediction according to  
2 said branch prediction and said misprediction value.

1           14. The method of claim 10, further comprising determining a final value, and updating  
2 said meta predictor and said base misprediction history register according to said final value.

1           15. The method of claim 14, wherein said updating includes comparing said final value  
2 to said branch prediction.

1           16.    The method of claim 10, further comprising bypassing said meta predictor when said  
2    misprediction history value contains all zeros (0).

1           17.    A processor, comprising:  
2           a branch predictor to generate a branch prediction;  
3           a base misprediction history register;  
4           a meta predictor that receives an index value, said branch prediction and base misprediction  
5    history register data to generate a misprediction value.

1           18.    The processor of claim 17, further comprising a final prediction to correlate to said  
2    misprediction value and said branch prediction value.

1           19.    The processor of claim 17, further comprising a logic gate to generate said final  
2    prediction.

1           20.    A computer readable medium having stored a plurality of executable instructions,  
2    the plurality of instructions comprising instructions to:  
3           receive an index value, a branch prediction value correlating to said index value, and a  
4    misprediction history value at a meta predictor; and  
5           generate a misprediction value at said meta predictor.

1           21.    The computer readable medium of claim 20, further comprising an instruction to  
2    generate said branch prediction value at a branch predictor.

1           22.    The computer readable medium of claim 21, further comprising an instruction to  
2    receive an index value at said branch predictor.

1           23.    The computer readable medium of claim 20, further comprising an instruction to  
2   generate a final prediction according to said branch prediction and said misprediction value.

1           24.    A method for restoring a branch prediction apparatus following a branch misprediction  
2   of a branch instruction, comprising:  
3                   restoring a base misprediction history register; and  
4                   restoring a branch predictor history register.

1           25.    The method of claim 24, further comprising updating a branch predictor.

1           26.    The method of claim 24, further comprising updating a meta predictor.

1           27.    The method of claim 24, further comprising flushing an instruction pipeline  
2   processing said branch instruction.